Draft Environmental Assessment to Investigate Suppression of Walleye in Noxon Reservoir

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Lead Agency:

Montana Fish, Wildlife & Parks

Responsible Official:

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Comment Period: Comments may be e-mailed to <u>kbreidinger@mt.gov</u> or <u>rkreiner@mt.gov</u>. Written comments may be sent to the following address by March 29, 2013:

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Purpose of and Need for Action

Proposed action:

Montana Fish, Wildlife & Parks (MFWP) proposes to conduct a 6-year effort to investigate suppressing illegally introduced walleye in Noxon Reservoir using a variety of sampling gear and techniques. Beginning in April 2013, as water temperatures approach 43° F, MFWP proposes to intensively electrofish and/or gillnet the upper portion of Noxon Reservoir from Flatiron Fishing Access Site to the Thompson Falls Dam several nights per week until the end of May or June or until walleye are no longer concentrated in the spawning area. As the project progresses, other capture techniques will be assessed. Initial efforts will focus on exploiting and disrupting adult spawning walleyes while concentrated at the upstream limit of the reservoir. A past telemetry study on walleye in Noxon revealed several other seasonal concentrations of walleye throughout the reservoir, and this information may be used to direct removal efforts at those times of year.

Funding:

Funding for this project will come primarily from Avista Utilities Appendix B portion of the Clark Fork Settlement Agreement.

Estimated time line:

This project is proposed to begin spring 2013 and continue until 2018. Removal efforts will begin when water temperatures downstream from Thompson Falls Dam reach 43° F and continue until walleye redisperse throughout the reservoir. As more is learned about Noxon Reservoir walleyes, removal efforts may expand to other parts of the year.

Location:

Noxon Reservoir is a run of the river, hydroelectric impoundment that inundates over 7,500 acres of the Clark Fork River. The dam was constructed in 1958, and the reservoir filled the following year. The facility is currently operated by Avista Corporation, formerly Washington Water Power. The upstream limit of the reservoir is defined by the Thompson Falls Dam, which impounds a much smaller reservoir upstream. Below Noxon Dam the Clark Fork River is impounded by Cabinet Gorge Dam.

Authority:

Section 87-1-201 (1) of the Montana Code Annotated (MCA) requires MFWP to supervise all wildlife and fish in the state of Montana. The Department may spend money for the protection, preservation, management, and propagation of fish (Section 87-1-201(3), MCA). Montana law requires the Department to implement programs that manage species listed as threatened or endangered under the federal Endangered Species Act in a manner that assists in the maintenance or recovery of those species. Relevant policies include I-D6 Walleye Stocking, I-D4 Illegal and Unauthorized Introduction of Aquatic Wildlife, and I-C2 Disposal of Gamefish Killed for Scientific Purposes. Additionally, the Statewide Fisheries Management Plan (MFWP 2012) was approved by the MFWP Commission in December 2012 and calls for suppression of walleye in Noxon Reservoir.

Need for action:

The walleye population in Noxon Reservoir is the result of an illegal introduction. Montana's Illegal and Unauthorized Introduction of Aquatic Wildlife Policy states that "if the Department determines that removal may be feasible it shall attempt removal at the earliest possible date." In spring 2012, MFWP conducted experimental netting and electrofishing over suspected spawning grounds and staging areas and determined that the capture and removal of walleye at that time of year was feasible. A limited sampling effort captured 103 adult spawning walleye.

The Montana Statewide Fisheries Management Plan (MFWP 2012) describes the management emphasis and priorities for all waters of the state. The current plan (2013-2018) was approved by the MFWP Commission in December 2012. In Noxon Reservoir, the plan calls for special management objectives for bull trout as well as largemouth and smallmouth bass populations. All other species fall under general management objectives, except walleye. The plan calls for suppression of walleye in Noxon Reservoir due to the threat they pose to other management objectives, as well as MFWP's policies against illegal introductions and management of walleye west of the Continental Divide.

First documented in 1991, walleye in Noxon appear to be the result of several illegal stocking events. Periodic spikes in catches of walleyes 16 inches and larger both by anglers and gillnets indicated an outside source of walleyes. This was supported by informant information although there was not enough evidence to pursue a case (J. Vashro, personal communication). Annual standardized gill netting, beginning in 2000, confirmed that the walleye population was established and naturally reproducing. Since then the population has exhibited an upward trend with catch rates showing an increasing rate of expansion. Additionally, the Noxon walleye

population is now feeding downstream water bodies, such as Cabinet Gorge Reservoir (CGR) and Lake Pend Oreille, and threatens those fisheries as well. It is unlikely that walleye are successfully reproducing in Cabinet Gorge Reservoir due to rapid flushing rates during high flows (1-2 days) (WWP 1996, Hartman 2009), but an expanding population has been established in Lake Pend Oreille (Ryan 2012).

Walleye introductions have negatively impacted sport and native fisheries throughout the west through competition, predation and forage depletions (Colby and Hunter 1989, Baldwin et.al. 2003, McMahon and Bennett 1996, Roberts et al. 2010) and have decimated fisheries and added significant cost to their management (Roberts et al. 2010). Based on case histories in lakes and reservoirs, walleye heavily impacted salmonids (trout, salmon, and whitefish) (Colby and Hunter 1989, Baldwin 1989, Roberts et al. 2010, McMahon and Bennett 1996), yellow perch (Roberts et al. 2010, McMahon and Bennett 1996), and smallmouth and largemouth bass (Garvey et al. 2002, Kempinger and Carline 1977). In the case of Escanaba Lake, walleye introduction nearly extirpated smallmouth bass. Fifty years later native bass and bluegill populations remain extremely low (Gauthier 2001, Kempinger and Carline 1977). The severity of walleye impacts to other sport fisheries is often dependent upon the degree of habitat overlap, which is often high in western reservoirs (McMahon and Bennett 1996).

Walleye introductions in western waters often result in an overpopulated and stunted walleye population or a population that fluctuates in a boom/bust cycle (McMahon and Bennett 1996). These impacts can lead to significant declines in angler use. In the case of Oahe Reservoir on the Missouri River in South Dakota, angler use declined by 75% during the peak of walleye abundance (T. Dickson 2010).

In a thorough review of fisheries trends since the completion of Noxon and Cabinet Gorge Reservoirs, Scarnecchia et al. (*In prep*) found significant increases in nonnative predator abundance concurrent with significant declines in forage species. These trends indicate the initial stages of what has been described as a "predator trap" with a large number of predators that depress prey populations and keep them from rebounding (McMahon and Bennett 1996). This situation is partially due to increasing walleye and will likely result in declines of current desirable species.

Currently Noxon Reservoir supports popular, economically important fisheries for smallmouth and largemouth bass, yellow perch, and northern pike. Several professional and semi-professional bass tournaments are held on the reservoir each year. Northern pike and yellow perch support popular year-round fisheries. Cold water species within the reservoir support less popular sport-fisheries; however, the reservoir does attract some lake whitefish anglers, and migratory cutthroat, rainbow, and brown trout are popular tributary fisheries during the spawning season. With the construction of the Thompson Falls fish ladder in 2011, many trout washed downstream into Noxon Rapids Reservoir were able to be passed back upstream to their natal (birth) tributaries. The large number of catchable-sized trout captured at the ladder in the past two years indicates that fish from upstream tributaries such as the popular Thompson River utilize Noxon Rapids Reservoir, and suppression of walleye combined with fish passage will also benefit these important fisheries. Many anglers travel to the area from outside Sanders County

during all seasons (see nonresident pressure on Noxon Rapids, Cabinet Gorge, Thompson River, and Bull River at MFWP 2009, Kreiner 2013).

The lower Clark Fork River and Lake Pend Oreille ecosystem is currently the subject of an intensive bull trout recovery project with numerous participating partners including Avista Utilities, Idaho Fish and Game, Montana Fish, Wildlife & Parks, Pennsylvania Power and Light (PPL) Montana, and the US Fish and Wildlife Service. Mitigation programs to offset the impacts of the three dams and reservoirs contribute millions of dollars to the local economy; the majority of this money is spent on bull trout recovery. Both resident and migratory bull trout life histories are represented in the project area. Migratory bull trout reside in the reservoir or use it as a corridor to Lake Pend Oreille. Walleye have been widely shown to negatively impact salmonid (trout, salmon, whitefish) populations (Colby and Hunter 1989, Baldwin et. al. 2003, Roberts et.al. 2010, McMahon and Bennett 1996). Within the reservoir, core areas of walleye use (Horn 2009) often center around tributaries' mouths during times of peak juvenile bull trout outmigration in the spring and fall. This habitat overlap likely results in high predation rates on juvenile migratory bull trout.

The walleye population in Noxon Reservoir remains low at this time, with catch rates during annual monitoring in 2012 averaging one fish per net night. Factors limiting the rapid population growth of walleye seen in other reservoirs are unknown; however, four seem likely:

- 1. Recent studies in Noxon Reservoir have shown extremely low levels of zooplankton, especially compared to surveys done in 1994 (WWP 1996, Tholl and Kreiner 2012). These low levels are likely partially linked to low water retention rates or flushing rates in the reservoir (Kalff 2002). Because larval walleye have been shown to feed on zooplankton in the early stages of life, this low abundance of zooplankton may be a limiting factor during years with low water retention times (high runoff years). Abundant zooplankton in the mid 1990s and walleyes' ability to utilize aquatic insects (Hoxmeier 2006) suggests that these conditions vary and could support high walleye recruitment in some years.
- 2. Because of their short incubation time (4 to 10 days), walleye larvae emerge as small (0.2 to 0.3 inches), poor swimmers dependant on drift to transport them from hatching areas to nursery areas (Scott and Crossman 1973, Hartman 2009). This fact is likely the reason that other studies have shown limited walleye abundance in reservoirs with short water retention times, especially during times of larval drift (BioAnalysts 2010). Because spawning dates in Noxon coincide with high water and, thus, short water retention times (<1 week), abundance may be limited during years with high flow. Conversely, a series of low flow water years in the late 1990s and early 2000s may have allowed the Noxon walleye population to expand to its current levels.
- 3. During spring 2012, the Lower Clark Fork reservoirs experienced a high, early run-off with three distinct "peaks" and associated "valleys" of flow. Sampling for spawning walleye was conducted over a 2-month period which spanned several of these fluctuations. Over this time, nearly all males encountered were considered ripe. However, the majority of females encountered were gravid (egg-bearing), but not ripe. It is believed that just as water temperatures were initially reaching optimal walleye spawning levels (50°, ~April 17), a large push of water came through which dramatically decreased the temperatures and delayed spawning. When sampling resumed three weeks

- later, gravid, unripe females were still encountered although males appeared to be "spawned out." Because males typically ripen earlier than females and linger near spawning beds for longer periods of time (Hartman 2009), conditions such as those experienced in 2012 have significant potential to reduce spawning success by reducing the overlap in readiness between the two sexes.
- 4. Walleye abundance in Noxon Reservoir remains low at this time, but is rising at an increasing rate. It is possible that the walleye population has not yet reached the threshold necessary to promote rapid population expansion.

Objective:

Primary objectives for this project are:

- 1. Suppress walleye in Noxon Reservoir to minimize future impacts to the sport and native fisheries and conform with Montana's Illegal and Unauthorized Introductions of Aquatic Species policy.
- 2. Evaluate the effectiveness of individual suppression techniques, location, and timing.
- 3. Evaluate the effectiveness of suppression efforts.

Evaluation:

Five criteria will be used to evaluate the effectiveness of suppression efforts.

1. Beginning in 2000, gill nets have been used to monitor fisheries trends within Noxon Reservoir annually. Annual sampling has consisted of 30 overnight sets each fall distributed throughout the reservoir. Results from this monitoring provide pre-project baseline data and clearly show an increasing walleye population (Figure 1). Departure from this trend over the following six years with a slowing rate of expansion, stabilization, or a declining trend will be considered one criterion for success. Conversely, a continuation of the current trend or an increasing rate of population growth would indicate suppression efforts were not successful and techniques would be reevaluated.

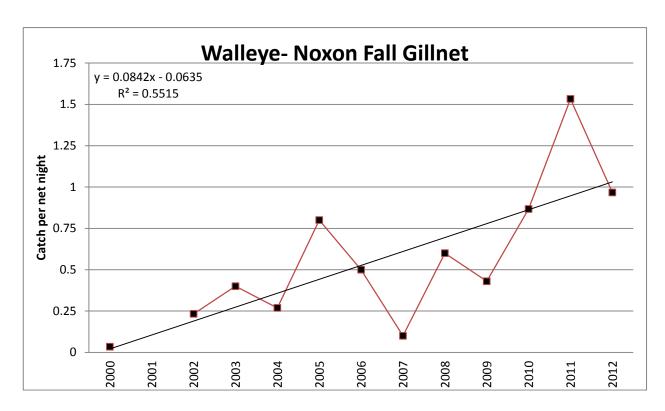


Figure 1. Walleye captured per net night between 2000 and 2012.

- 2. This suppression effort will also attempt to disrupt spawning success at the only known spawning location at the head of Noxon Reservoir. Success of spawning disruption will be easily monitored by analyzing age and size structure. Walleye are not typically encountered in gill nets until they reach at least two years old. Likewise, walleye do not spawn until at least two years of age and therefore do not migrate to spawning habitat until that age. Beginning in 2015, weak or absent young age classes in annual gill net and suppression efforts will indicate low recruitment. It is important to note that weather and flow conditions appear to play an important role in walleye recruitment as well. Weak or absent age classes during the suppression period may be the result of weather or flow conditions, the suppression effort, or a combination of each.
- 3. The walleye population in Cabinet Gorge Reservoir is thought to be entirely sustained by fish moving downstream from Noxon Reservoir. Therefore, successful suppression efforts in Noxon Reservoir are expected to impact walleye downstream. Declining walleye trends, measured by annual gill net monitoring, will suggest decreasing walleye contributions from upstream and be an indication of successful suppression.
- 4. Trends in other fish species will also be used to determine success of this project. Gill net trend data indicates that forage species such as yellow perch, peamouth, largescale suckers, and northern pikeminnow are declining. Scarnecchia et al. (*In prep*) suggests that these declines are likely due to increasing predator numbers that are largely attributed to the expanding walleye population. Successful suppression of walleye should be indicated by slowing or eliminating these declines.
- 5. An important component of this project is to remove a readily available source of walleye for future illegal introductions. Continued absence of walleye upstream of Thompson Falls Dam and in area waters will indicate success.

Decisions to be made:

The decision maker will determine the following from this EA:

- Determine if proposed alternatives meet the project objectives.
- Determine which proposed alternative should be selected.
- Determine if the selected alternative would cause significant effects to the human environment, requiring the preparation of an environmental impact statement (EIS).

Scope and History of this Environmental Analysis:

Noxon Reservoir is a run of the river, hydroelectric impoundment that inundates 7,952 acres at full pool and approximately 37 miles of the Clark Fork River. The dam was constructed in 1958 and the reservoir filled the following year. The facility is currently operated by Avista Corporation, formerly Washington Water Power. The upstream limit of the reservoir is defined by the Thompson Falls Dam which impounds a much smaller reservoir upstream. Downstream of Noxon Dam the Clark Fork River is impounded by Cabinet Gorge Dam.

Initially, fisheries management in the reservoir focused on cold water recreational fisheries. Repeated attempts to stock rainbow, brown, and cutthroat trout in the 1960s and 70s failed to produce adequate reservoir fisheries. In 1971 burbot were first stocked into the reservoirs. This and subsequent stockings failed to produce an established population. Largemouth bass were already present, and in 1982 smallmouth bass were stocked and quickly became established (Washington Water Power, 1994). Subsequent stockings added more largemouth and smallmouth bass to the reservoir. Since its formation, numerous other species have moved into Noxon Reservoir from upstream sources. Lake whitefish, pumpkinseeds, yellow and black bullheads, yellow perch, and northern pike have become established in the reservoir. Kokanee and lake trout are sometimes encountered, but are likely not reproducing in the reservoir. Currently, northern pike, yellow perch, and bass support the most popular sport fisheries on the reservoir. Northern pike and yellow perch support year-round fisheries and are the target species of most ice anglers (Kreiner 2013)

Walleye were illegally introduced into Noxon Reservoir in the mid to late 1980s. Based on several spikes in angler catches and an informant, the population is the result of several introduction attempts (Jim Vashro, personal communication). The source of the parent stock of walleye is unknown; however, Huston (1994) theorized that the source was from Lake Roosevelt in eastern Washington. Walleye were initially captured during reservoir monitoring in 1994 when a total of six walleye were sampled using electrofishing and gill nets. This sampling consisted of 3,427 minutes of electrofishing and 8,593 gill net hours (WWP 1996) indicating that abundance at that time was extremely low. Beginning in 2000, gill nets were set annually in standardized locations to monitor trends in the fish community. A report on this effort (Horn and Tholl 2010) found that catch rates for walleye increased over the study period, while catch rates for many other species commonly caught in gill nets decreased. Sampling since then suggests that this increasing walleye trend continues (Horn and Tholl 2011, Tholl and Kreiner 2012, MFWP unpublished data).

Since their discovery, fisheries managers have been concerned about the effects of this new walleye population on sport and native fish resources. This concern prompted a walleye life

history study completed in 2009 (Horn et. al. 2009). A notable finding of this study was that nearly all walleyes spawned in the upper reservoir, and the spawning was concentrated in a few areas. In 2008, an effort was made to capture walleyes while they were concentrated on and near the suspected spawning location. Both electrofishing and trap netting proved unsuccessful at catching a single walleye. In 2012, increasing walleye catch rates and inconclusive aging results led to this project being revisited. During the 2012 study a total of 103 walleye were captured between the Flatiron Fishing Access Site and suspected walleye spawning locations. Otoliths from adult fish were collected and analyzed to assure accurate aging and verify walleye ages estimated using dorsal spines. Among other findings, this study indicated that significant numbers of walleye could be collected with minimal effort in the right conditions.

Issues studied:

1. Sport fish and fisheries

Impacts to game fish populations including largemouth and smallmouth bass, yellow perch, northern pike, trout, and whitefish from walleye suppression are expected to be positive if walleye predation and competition is reduced/eliminated. Yellow perch are a preferred walleye forage species, but also a popular game fish in the reservoir. Perch numbers are currently declining in the reservoir. Additionally, trout from popular stream fisheries which also utilize Noxon Rapids Reservoir, such as the Thompson River, are currently susceptible to walleye predation. Future declines of all desirable sport fisheries may be avoided by preventing the uncontrolled expansion of walleye. Short-term impacts to current sport and native species posed by handling stress (electrofishing) or bycatch (gillnetting) should be more than offset by the benefits to these species.

Impacts to the burgeoning recreational walleye fishery are unknown. The extent of achievable suppression is currently unknown. Successful suppression may result in a population decline that would reduce numbers to below a fishable level. If suppression is not sufficient to eliminate the population, it may still benefit a walleye fishery by avoiding a population expansion that would lead to an overpopulated, stunted fishery.

2. Threatened species

Bull trout are the only threatened fish species within the project area. Migratory bull trout that originate in Noxon Reservoir and Clark Fork River tributaries use the reservoir as feeding and rearing habitat and as a migratory corridor to rearing habitat in Lake Pend Oreille. Bull trout are expected to benefit from this project due to reduced walleye competition and predation. Future threats to bull trout posed by excessive walleye expansion will also be avoided if this project is successful.

Extensive field sampling for walleye does pose a threat to individual bull trout through handling stress and potential bycatch in nets. These negative effects are expected to be offset by the positive benefits of effective walleye suppression.

3. Sensitive and native fish species

Westslope cutthroat trout are common throughout Noxon Reservoir and its tributaries. Migratory individuals use the reservoir year round with the exception of spawning runs

into their natal tributaries. Westslope cutthroat trout are expected to benefit from walleye suppression in the same ways bull trout and sport fish benefit.

Native, nongame species such as pikeminnow, peamouth, and suckers are common in Noxon Reservoir and are important forage for the reservoir's predatory species. These species are likewise likely to benefit from reduced walleye predation and competition.

4. Wildlife species

Impacts to terrestrial wildlife from this project are expected to be minimal. Minor shifts in behavior may occur near the project area. The effects of a walleye dominated fishery on piscivorous birds and mammals is unknown and has not been evaluated for this document.

5. Public controversy

It is anticipated that walleye suppression will create considerable public controversy. Opposition and support are expected from individuals and groups interested in Noxon's aquatic resources. Noxon Reservoir's burgeoning walleye fishery has generated a lot of interest among walleye anglers, many of whom will likely oppose suppression efforts. Individuals and groups supporting native species recovery and anglers interested in the area's other sport fisheries will likely support the walleye suppression.

6. Community and economic impacts

Local fisheries contribute significantly to the local economy. Anglers from throughout Montana and neighboring states come to this area to fish for bass, perch, pike, walleye, whitefish, and trout. The bass fishery supports up to seven professional and semiprofessional bass fishing tournaments annually, and the pike and perch fishery draw anglers to the area year round (Kreiner 2013), providing important winter tourism during the off season. While here, anglers spend money at local businesses.

Mitigation programs at Avista Utilities and PPL Montana also contribute many millions of dollars to the local economy annually. These programs result in numerous full-time and seasonal jobs in the lower Clark Fork area and other project expenditures. Mitigation programs at both companies primarily fund bull trout recovery, but also fund terrestrial wildlife conservation, sport fish monitoring and management, and maintenance and development of fishing and other public access sites.

With the exception of the newly established walleye fishery, this project is expected to have a positive effect on the resources that support these economic contributions. Loss of the current fisheries to an expanding walleye population would most certainly reduce the numbers anglers traveling to the area. Any economic boost contributed by the emerging walleye fishery will likely be short term. Walleye introductions in western waters often result in high density, stunted populations (McMahon and Bennett 1996). Stunted walleye are not desirable sport fish, and angler use typically declines significantly under these conditions (Dickson 2003, Roberts et al. 2010).

7. Illegal introductions

Illegal introductions of fish have become increasingly common in the state of Montana and throughout the west. In Montana these introductions have resulted in decimated fisheries, loss of angling opportunity, and increased management costs. This is especially a problem in MFWP Region 1 (northwest Montana) where approximately 295 illegal introductions have occurred.

In an essay on illegal introductions, Johnson et al. (2009) gives several explanations for this ongoing problem and includes past inappropriate responses by different management agencies. In a Colorado example the authors state, "By failing to respond vigorously to these illegal introductions... the agency tacitly condoned and rewarded the behavior, generated an angling clientele and a demand for the prohibited species elsewhere in the region, and made future efforts to contain the spread of northern pike and other illegally stocked species much more challenging." Walleye suppression in Noxon Reservoir as well as a continued refusal to promote the fishery will increase public awareness of the problems posed by illegal introductions, prevent the use of Noxon walleye as source for new illegal introductions, and deter future illegal introductions.

8. Waste of game fish

Walleye in Montana are classified as a game fish and therefore cannot be wasted by anglers. Concern about disposal of fish killed during annual monitoring and other work has been raised in the past and may be a source of contention. Montana's policy on disposal of game fish killed for scientific purposes will guide disposal of fish killed during suppression efforts. In this case, fish that are fit for consumption and do not exceed consumption advisories will be donated to local food banks when possible. It is likely that all fish killed during spring electrofishing efforts will be salvageable and will be donated to food banks. Fish that are not fit for consumption, exceed consumption advisories, or are otherwise not able to be donated to food banks will be donated to animal rehabilitators, disposed of at the local landfill, or sunk in deep water.

Applicable permits, licenses, and other consultation requirements

1. Permits

Any alternative selected that requires handling of fish will require consultation with the US Fish and Wildlife Service to determine relative impacts to bull trout, a Threatened Species under the Endangered Species Act. At the conclusion of this evaluation, the US Fish and Wildlife Service will incorporate any additional bull trout incidental take under the existing Section 6 permit authorized by the Endangered Species Act.

Why an EA is appropriate level of review:

In this case, an EA is the appropriate level of review for several reasons. Because MFWP has two previous policies in place, which call for the immediate removal of illegally introduced species and prevent management of walleye west of the continental divide, these removal actions are justified. Furthermore, with the primary removal tactic being electrofishing, bycatch will be minimal and the target species will be the principal species affected. As stated previously, any economic gain due to the expanding walleye population would likely be negligible compared to current fishery economics and short-lived as has been widely documented elsewhere. These actions are justified scientifically and legally. Removing fish species from a water body is not a

new or unusual MFWP action, it will not set a precedent, and it will not conflict with local, state, or federal laws or formal plans. Due to these factors, an EIS is not necessary and an environmental assessment is the appropriate level of analysis. A narrative EA was performed because this action may generate public controversy, the action has potentially noteworthy impacts that can be mitigated, and MFWP wants to walk the public through the entire decision-making process.

Alternatives Including the Proposed Action

Description of alternatives:

1. No action

Under the no-action alternative, walleye would not be removed from Noxon Reservoir for the purpose of suppression. Lethal sampling would continue for scientific purposes, and some anglers would continue to harvest walleye. Current fisheries trends would likely continue until walleye overpopulate the reservoir and other sport and native fisheries crash. The expanding walleye population and subsequent decline of sport and native fisheries would result in decreased angler satisfaction and use and increased need and costs for management.

This alternative would violate MFWP's Illegal and Unauthorized Introduction of Aquatic Wildlife Policy and Walleyes West of the Divide Policy and contradict Montana's Statewide Fisheries Management Plan and Montana's Restoration Plan for Bull Trout in the Clark Fork River Basin and Kootenai River Basin Montana.

2. <u>Targeted and incidental removal of walleye from Noxon Reservoir (preferred alternative)</u>

Under this alternative, juvenile and adult walleye would be removed from Noxon Reservoir through targeted sampling and when encountered during other field work. Walleye would also be removed from Cabinet Gorge Reservoir when encountered during standard surveys but, due to their assumed lack of spawning success, will not be targeted for active suppression. Initially, sampling will focus on evaluating the effectiveness of different removal techniques including electrofishing, gill netting, and trap netting. Removal techniques would be evaluated based on their ability to maximize walleye captures while minimizing negative impacts to other fish species. Throughout this evaluation, focus will remain on the primary objective of removing walleye to prevent impacts to desirable fisheries; however, if any technique appears to be negatively impacting other species, potential impacts will be evaluated and weighed against the benefits of walleye removal. Other suppression techniques may also be attempted. A supplemental EA will be prepared for techniques not addressed in this document.

Walleye removal will assure that MFWP remains consistent with established policy and will minimize impacts to sport and native fisheries caused by an expanding walleye population.

Principal actions associated with this alternative will begin in April 2013, as water temperatures near 43°F, when MFWP and cooperators will begin intensively

electrofishing and gill netting the area between Flat Iron boat ramp and the Thompson Falls Dam. This effort will continue until the end of spawning, likely in early June. Gill and or trap nets may also be deployed throughout the year in areas of known concentrations when scheduling allows.

Results from suppression efforts will be monitored using the current fall gillnet monitoring surveys, which are conducted annually in Noxon and Cabinet Gorge reservoirs. Trends deducted from these surveys over the past 12 years have shown an increase in walleye abundance, peaking with a catch rate of 1.53 fish per net night in 2011. Although lower in 2012, the catch rate of 1.0 fish per net night was still above the 2000-2010 mean of 0.42, and was the second highest catch rate in 12 years of records. Stabilization or a declining trend in walleye numbers, coupled with a reduction in recruitment, would be considered a success.

Suppression efforts will be conducted in areas and habitats frequented by desirable fish species. To minimize negative impacts to other fish species, gill nets set specifically for suppression initially will be limited to 2.5 hours between checks. Gill nets that are routinely catching and killing nontarget fish will be adjusted to minimize bycatch. Likewise, all suppression methods will be adjusted if undesirable negative impacts are observed.

Process used for alternative development:

Numerous methods have been successfully used to control undesirable fish species including angler harvest, biological controls, mechanical removal, the use of piscicides, and habitat alteration. Application of each is dependent upon the circumstance associated with each project.

Several alternatives for suppressing or eradicating walleye from Noxon Reservoir were eliminated from consideration. Due to the high reproductive potential of walleye, angler harvest has not been sufficient to control walleye populations in western reservoirs and was eliminated from consideration. Biological controls can present significant risks to fisheries and therefore were likewise not considered. The presence of desirable and threatened species precluded the use of piscicides (fish poisons). Habitat alteration, likely through flow or reservoir level manipulation, has not been thoroughly investigated.

Summary of Comparison of the Activities, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of All Alternatives

- 1. <u>Summary comparison of project activities.</u>
 - The no-action alternative would result in no future management of the Noxon Reservoir walleye. The proposed action would remove as many walleye as possible from Noxon reservoir.
- 2. <u>Summary comparison of predicted achievement of project objectives</u>
 The primary objective of this project is to suppress walleye in Noxon Reservoir. The noaction alternative will not meet this objective. Under this alternative, MFWP will violate Montana's Illegal and Unauthorized Introduction of Aquatic Wildlife Policy and the

walleye population will continue expansion. The proposed alternative will satisfy the primary objective and minimize the negative impacts to aquatic resources by the burgeoning walleye population.

3. Summary comparison of predicted environmental effects

Under Alternative 1, the no-action alternative, walleye expansion will continue to directly and indirectly affect the local environment. These effects will be negative and likely result in significant reductions of native, sport, and forage fish. Significant changes to the fish community may also affect piscivorous mammals and birds. However, these effects are unknown, likely minimal, and have not been evaluated in this document.

Alternative 2, walleye suppression, will halt walleye expansion and cause a declining trend in walleye abundance. Successful implementation of this alternative will minimize walleye's ability to overpopulate the reservoir and negatively affect sport, native, and forage fish.

4. Summary comparison of predicted human environment effects

This document studied four issues pertaining to the human environment: public controversy, community and economic impacts, illegal introductions, and the waste of game fish. Comments to date indicate that both alternatives analyzed in this document will generate significant public controversy. Those who desire a walleye fishery in western Montana will likely support Alternative 1 and oppose Alternative 2. Those who value other sport and native species will likely oppose Alternative 1 and support Alternative 2.

The no-action alternative could initially benefit the local economy by providing a new fishing opportunity in the area. These benefits will likely be short lived and ultimately result in a significant net loss of angling and possibly mitigation contributions to the local economy as other fisheries decline. The preferred alternative will result in stable fisheries that support the current angling economic contributions. Additionally, contributions from mitigation programs will not be steered away from the reservoirs.

The no-action alternative will not deter future illegal introductions, will reward walleye anglers including the anglers responsible for the introduction, and will not remove a source for potential future illegal introductions. Conversely, the walleye suppression alternative constitutes the appropriate response to deter future illegal introductions.

The no-action alternative will not remove any fish from Noxon Rapids Reservoir and, therefore, will not waste any fish. Alternative 2 will remove walleye from the reservoir and may result in the loss of some edible portions of fish. The waste of walleye and some bycatch will largely be mitigated by donations of the fish to local food banks. It is anticipated that some fish will not be in edible condition and many may exceed consumption advisories (MFWP 2007); these fish will be donated to animal rehabilitation centers, sunk in deep water, or landfilled.

Affected Environment

General location and description of Noxon Reservoir

Noxon Reservoir is a run of the river, hydroelectric impoundment that inundates over 7,500 acres of the Clark Fork River (Figure 1). The downstream limit of the reservoir is defined by Noxon Dam approximately 3 miles upstream of the town of Noxon. The upstream limit is defined by the Thompson Falls Dam in the town of Thompson Falls.

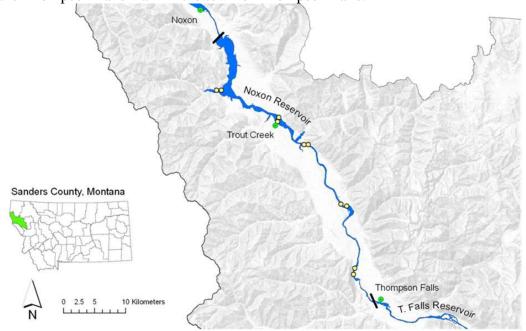


Figure 1. Map of proposed project area (Noxon Reservoir, Sanders County).

Description of relevant affected resources

1. Sport fish and fisheries

Noxon Reservoir and its tributaries contain a diverse variety of native and nonnative fish, many of which are valued sport fish. Currently, largemouth and smallmouth bass provide the most popular fishery on the reservoir. Annually up to seven professional and semiprofessional tournaments are held in the spring and summer months. The current state record largemouth bass was captured in Noxon Reservoir in 2009.

Northern pike are commonly targeted throughout the year by anglers and provide an opportunity to catch trophy-sized fish. Fish nearing 30 pounds are possible, and fish exceeding 30 pounds are occasionally caught. A limit of 15 pike per day allows for a harvest-oriented fishery as well. Northern pike are a significant component of the ice fishery, drawing 83% of winter anglers from outside Sanders County. The fishery is also popular among local anglers with 72% targeting pike through the ice (Kreiner 2013).

Yellow perch are also popular among anglers and are pursued year round. This species is particularly popular among local ice anglers with 67% of Sanders County residents targeting yellow perch. Recent gill net trend data indicates that yellow perch abundance

is declining in Noxon Reservoir. This trend is concurrent with an increasing walleye population.

Few anglers target other species; however, there is some interest in lake whitefish, and an increasing number of anglers are targeting walleye as the population expands. Northern pikeminnow, peamouth, largescale suckers, and pumpkinseeds are commonly caught by anglers pursuing other species. The Montana state record for northern pikeminnow was caught at Noxon Reservoir.

Although rarely pursued in Noxon Reservoir, trout are commonly pursued in its tributaries. Cutthroat, rainbow, and brown trout that migrate to Noxon Reservoir often achieve larger sizes due to food availability and habitat differences. These larger fish are often targeted during spawning seasons in tributaries to Noxon Reservoir. Numerous large trout have been passed upstream at the Thompson Falls fish ladder. These fish, that are exiting Noxon, are assumed to be spawning in the Thompson River and other upstream tributaries and are likely contributing to those fisheries.

2. Threatened species

Bull trout are the only threatened fish species within the project area. Migratory bull trout that originate in Noxon Reservoir and Clark Fork River tributaries use the reservoir as feeding and rearing habitat or as a migratory corridor to Lake Pend Oreille. Although the population size of adults using Noxon Reservoir is difficult to estimate, indices such as juvenile abundance and redd counts suggest that the population has been relatively stable in most tributaries since 2000.

Bull trout recovery is the primary focus of the PPL Montana and Avista Corporation mitigation programs. Beginning in 2011 with the opening of the Thompson Falls fish ladder, connectivity to the Clark Fork River was restored by PPL Montana. PPL also administers a program to restore habitat in upstream bull trout spawning tributaries and monitor fisheries trends in the Clark Fork River and Thompson Falls Reservoir.

Avista also has an aggressive mitigation program to restore bull trout that includes habitat restoration, population monitoring, and an upstream/downstream transport program of fish around the dams between tributaries and Lake Pend Oreille. The downstream transport program captures juvenile bull trout within tributary streams and transports them to a release site below Cabinet Gorge Dam in Idaho, while the upstream transport program captures adults attempting to move upstream to their natal tributary based on a genetic assignment. Prior to implementation of Avista's upstream transport program, migratory populations of bull trout were sustained entirely by fish using Noxon Reservoir. Although the recent upstream transports have contributed to local bull trout populations, a population level response has not yet been observed. The effects of the downstream transport program on the wild bull trout population remain unknown, but recent research suggests that tributary populations are still primarily sustained by resident/reservoir-reared bull trout (DeHaan and Bernall 2012), so in-reservoir impacts by walleye are of concern.

3. Sensitive and native fish species

Westslope cutthroat trout are the only native species classified as a species of special concern. They are rare throughout Noxon Reservoir and common in its tributaries. Migratory individuals use the reservoir year round with the exception of spawning runs into their natal tributaries. In addition to migratory cutthroat, many fish exhibit a resident life history in tributaries to Noxon reservoir. Hybridization is considered to be the biggest threat to westslope cutthroat, and many pure populations are found in tributary streams above barriers that prevent fish passage.

Mountain whitefish, northern pikeminnow, peamouth, redside shiner, largescale sucker, and longnose sucker comprise the remainder of native fish in Noxon Reservoir. Due to few gill net captures, trend data is not available for mountain whitefish in Noxon. The remaining native species are all exhibiting downward trends in gill net catch rates. This is possibly due to increasing predators within the system. Interestingly, the northern pikeminnow is the only piscivorous species exhibiting a declining population trend.

4. Wildlife species

Numerous mammals use Noxon Reservoir and the surrounding area. Aquatic species that use the reservoir include beaver, muskrat, otter, and moose.

Avian species that use Noxon Reservoir include numerous species of waterfowl, raptors such as osprey and eagles, and wading birds.

5. Public controversy

Suppression or eradication of a fish species often generates significant public controversy. This controversy often centers on issues such as the use of toxicants, angler interest and use, and management direction. There is significant public interest in both sport and native fish. Conflict is likely to arise between those who value native fish and sport fish other than walleye and those who value walleye if suppression is implemented.

6. Economics

Sport fishing and native fish restoration both substantially contribute to the Sanders County economy. Sport fishing in Noxon Reservoir provides year-round recreation and attracts anglers from throughout the northwest. Anglers contribute to the economy through their purchases of food, fuel, gear, and lodging. In addition to recreational angling, Noxon Reservoir supports up to seven professional and semiprofessional bass tournaments annually.

Native fish restoration also contributes substantially to the local economy. Mitigation programs at each utility company employ numerous biologists and technicians. Additionally, these programs also purchase supplies at or contract with local businesses. For example, local construction companies are often contracted to perform restoration projects. These programs also use fuel and equipment that is purchased locally.

Mitigation programs also support numerous public access sites such as day use areas, camp grounds, and fishing access sites. These sites employ maintenance and

management personnel, require contracting with other companies, and require fuel and equipment that is purchased locally. By providing more access for camping and fishing, this portion of the mitigation program has likely increased visitation from outside Sanders County.

7. <u>Illegal introductions</u>

Illegal introductions are common throughout western Montana and have caused significant impacts to area fisheries. In MFWP Region 1 (northwest Montana), at least 295 illegal introductions have occurred. In the Clark Fork drainage these include rainbow trout, brook trout, lake trout, northern pike, walleye, yellow perch, largemouth and smallmouth bass, pumpkinseed, bluegill, black crappie, black bullhead, and redside shiner. In some cases these introductions did not result in an established fishery due to an unsuccessful introduction or a timely eradication. Many of the illegal introductions are now firmly established and uncontrollable due to widespread populations.

8. Waste of gamefish

Waste of edible portions of gamefish by anglers is classified as a misdemeanor crime. Gamefish are commonly caught and killed during standard scientific sampling and the disposition of these fish has sometimes caused controversy. To address this problem Montana adopted the Disposal of Gamefish Killed for Scientific Purposes Policy. The policy states that fish captured during scientific investigations can be used for educational purposes or donated to charitable organizations for human consumption. If this is impractical, a legal limit may be given to anglers possessing a fishing license. Failing these options, fish may be sunk in lakes, buried on shore, or land filled.

Environmental Consequences

Predicted attainment of the project objective for all alternatives

Alternative 1

The no-action alternative will not meet the objectives of suppressing walleye in Noxon Reservoir, i.e., evaluating the effectiveness of suppression efforts and evaluating the effectiveness of individual suppression techniques.

Alternative 2

Implementation of walleye suppression will meet the objectives of this project, result in a reduced adult walleye population and disrupted spawning season, and allow for evaluation of the effectiveness of walleye suppression and suppression techniques. Successful implementation of this project will result in downward population trajectory and the loss or reduction of younger year classes.

Predicted effects on relevant affected resources of all alternatives

Effects of the no-action alternative on Issue 1, Sport Fish and Fisheries.

a. Direct effects

The no-action alternative will not have any direct effects because there will be no additional management of walleye.

b. Indirect effects

The no-action alternative will have indirect effects on the sport fish community. Under this alternative, walleye will not be suppressed and suppression techniques and effectiveness will not be assessed. Walleye will continue to expand, and negative impacts to sportfish and their fisheries caused by walleye predation and competition increase. Future management of the sport fishery will be more difficult due to increasing walleye abundance.

c. Cumulative effects

The no-action alternative will have cumulative effects on the sport fishery. Increasing walleye predation and competition will likely result in decreased numbers of sportfish, altered behavior, and altered species interactions.

Effects of the proposed alternative on Issue 1, Sportfish and Fisheries

a. Direct effects

The proposed alternative will have direct effects on sportfish. Under this alternative walleye will be suppressed and removed from Noxon Reservoir, resulting in a smaller population or complete eradication. Other sport fish may also be affected. However, efforts to reduce bycatch are expected to minimize these effects.

The proposed alternative will also have direct effects on the recreational fisheries. Successful removal of walleye will result in decreasing catch rates among anglers pursuing this fish. As catch rates decline, fewer anglers are likely to pursue walleyes. However, this should be offset by increased catch rates for other species.

b. Indirect effects

Removing walleye from Noxon Reservoir will have indirect effects on the remaining sport fish. These effects are expected to be positive due to decreased predation and competition. The threat of future population crashes as a result of walleye overpopulation will also be relieved.

The quality of the Noxon sport fishery is likely to remain stable or improve due to the maintenance of the current sport fish populations.

c. Cumulative effects

Cumulative effects of the proposed action will result in a reduction of walleye in Noxon Reservoir. The declining population will likely result in reduced angler interest and use of the Noxon walleye fishery.

Effects of the suppression effort are expected to be positive for other sport fish and their associated fisheries. Negative impacts associated with bycatch are expected to minimal and mitigated by the positive effects of the suppression effort.

Effects of the no-action alternative on Issue 2, Threatened Species

a. Direct effects

The no-action alternative will not have direct effects on bull trout in Noxon Reservoir because suppression will not be implemented.

b. Indirect effects

The no-action alternative will likely have significant indirect effects on the bull trout population. The impacts of walleye predation on salmonid populations are well documented, and it is likely that bull trout populations in Noxon Reservoir will be similarly affected.

c. Cumulative effects

Cumulative effects of walleye expansion on bull trout will occur if suppression is not implemented. This includes increasing rates of walleye predation and possibly competition. The Noxon walleye population will also continue to contribute to the downstream populations in Cabinet Gorge Reservoir and Lake Pend Oreille. Stable or increasing contributions to these waters will have similar effects on their bull trout populations and lead to more difficult management of those populations.

Effects of the proposed alternative on Issue 2, Threatened Species

a. Direct effects

The proposed alternative may have direct effects on bull trout. The proposed action will focus on an area known to be used by bull trout during spring. Effects include catching bull trout during suppression efforts and altering behavior in the immediate vicinity of electrofishing efforts. Gill nets may inflict some mortality on bull trout; however, this will be mitigated by short duration net sets or strictly electrofishing at that time of year.

b. Indirect effects

The proposed alternative will have indirect effects on the bull trout population. These effects are expected to be positive due to minimized walleye predation and competition.

c. Cumulative effects

Walleye suppression will have cumulative effects on bull trout. Bull trout mortality as a result of bycatch may occur, but this is expected to be minimal and mitigated by the positive effects of walleye removal. The benefits of successful walleye suppression will be realized in downstream waters as the source for those populations is reduced or removed.

Effects of the no-action alternative on Issue 3, Sensitive and Native Fish

a. Direct effects

The no-action alternative will not have direct effects on sensitive and native species in Noxon Reservoir because suppression will not be implemented.

b. Indirect effects

The no-action alternative will have indirect effects on the sensitive and native fish population. The effects of walleye on salmonid and forage fish populations are well documented, and it is likely that native fish in Noxon Reservoir will be similarly affected.

c. Cumulative effects

Cumulative effects of walleye expansion on native and sensitive fish will occur if suppression is not implemented. This includes increasing rates of walleye predation and competition. The Noxon walleye population will also continue to contribute to the downstream populations in Cabinet Gorge Reservoir and Lake Pend Oreille. Stable or increasing contributions to these waters will have similar effects on their native fish populations and lead to more difficult management of those populations.

Effects of the proposed alternative on Issue 3, Sensitive and Native Fish

a. Direct effects

The proposed alternative may have direct effects on sensitive native fish. The proposed action will focus on an area known to be used by westslope cutthroat trout and which contains high densities of largescale suckers and moderate densities of mountain whitefish, northern pikeminnow, and longnose sucker. Effects include catching these fish during suppression efforts and altering behavior in the immediate vicinity of electrofishing efforts. Gill nets may inflict some mortality on native fish; however, this will be mitigated by short duration net sets if necessary or strictly electrofishing at that time of year.

b. Indirect effects

The proposed alternative will have indirect effects on the native species populations. These effects are expected to be positive due to minimized walleye predation and competition.

c. <u>Cumulative effects</u>

Walleye suppression will have cumulative effects on native fish. Mortality as a result of bycatch may occur, but this is expected to be minimal and mitigated by the positive effects of walleye removal. The benefits of successful walleye suppression will be realized in downstream waters as the source for those populations is reduced or removed.

Effects of the no-action alternative on Issue 4, Wildlife Species

a. Direct effects

The no-action alternative will not have direct effects on wildlife species because suppression will not be implemented.

b. Indirect effects

Wildlife species that are dependent upon fish may be indirectly affected. As a result of changing fish community structure, surface oriented fish species that are normally preyed upon may be reduced in abundance making hunting difficult for piscivorous birds and mammals. Instability in fish populations, and boom and bust cycles may also affect wildlife dependent upon fish for food.

c. Cumulative effects

None.

Effects of the proposed alternative on Issue 3, Wildlife Species

a. Direct effects

The proposed alternative may have direct effects on wildlife. These effects are expected to be minimal and will likely be limited to minor behavioral shifts in the immediate vicinity of workers.

b. Indirect effects

Wildlife species that are dependent on fish may benefit from the increased fishery stability anticipated from the walleye suppression.

c. Cumulative effects

None.

Effects of the no-action alternative on Issue 5, Public Controversy

a. Direct effects

The no-action alternative will directly affect public controversy. People who support native fish conservation and anglers who pursue species other than walleye will oppose the decision to not suppress walleye. There will also be people who oppose this alternative because it deviates from established policy.

b. Indirect effects

The no-action alternative will also indirectly affect public controversy. As walleye populations expand, native and sport fish are likely to decline. The decline or loss of these fisheries will likely result in an increased call for management of walleye and restoration of the impacted species.

c. Cumulative effects

Effects of the no-action alternative will likely increase as walleye abundance continues to increase and impacts other fisheries. Controversy will also likely expand as the Noxon population continues to contribute walleye to downstream waters.

Effects of the proposed alternative on Issue 5, Public Controversy

a. Direct effects

Walleye suppression will directly affect public controversy. Anglers who pursue this species and want to see its range expanded will oppose this proposed alternative.

b. Indirect effects

Successful implementation of walleye suppression will probably indirectly affect public controversy. Rumors of suppression, coupled with decreases in walleye abundance, may limit walleye anglers heading to the region. However, the quality bass, pike, trout, and perch fisheries of the area will continue to be the primary draws for anglers. The suppression of walleye will benefit these fisheries and sustain high levels of use.

c. Cumulative effects

Walleye suppression will likely affect downstream waters by reducing or eliminating the upstream source. The walleye population in Cabinet Gorge is thought to be entirely dependent upon the Noxon population as a source. Therefore, reduction or removal of the Noxon walleye population will likely have a similar result on that population.

Effects of the no-action alternative on Issue 6, Community and Economic Impacts

a. Direct effects

The no-action alternative will not have direct impacts on the community or the local economy.

b. Indirect effects

The no-action alternative will have indirect effects on the community and local economy. As the walleye population expands, negative impacts to the desirable fisheries in Noxon Reservoir and its tributaries will increase and angler use will decline. Likewise, mitigation funding may be diverted from the reservoir to areas more suitable to native species.

c. Cumulative effects

The reduction of angler use and its associated economic contribution combined with the possible shift in mitigation funding and management away from the reservoirs will significantly impact the local economy. Additionally, the declining quality of the sport fisheries will result in decreased opportunity to recreate in the area. These effects will continue downstream as walleye in Cabinet Gorge overpopulate and impact that fishery as well.

Effects of the proposed alternative on Issue 6, Community and Economic Impacts

a. Direct effects

The proposed alternative will have direct effects on the community and local economics. Successful implementation of walleye suppression will have immediate effects on the fishery, and these effects will likely result in a reduction of walleye angling and the associated economic inputs.

b. Indirect effects

The proposed alternative will have indirect effects on the community and local economy. Successful walleye suppression or eradication will result in greater stability of the desirable sport fisheries and avoid the anticipated reduction in angler use.

c. Cumulative effects

Effects of the proposed action will likely continue downstream to Cabinet Gorge Reservoir where walleye suppression will have similar impacts on the community and economy.

Effects of the no-action alternative on Issue 7, Illegal Introductions

a. Direct effects

The no-action alternative will violate MFWP's Illegal and Unauthorized Introduction of Aquatic Wildlife Policy.

b. Indirect effects

The no-action alternative will indirectly affect this issue. Failure to respond to this illegal introduction will reward walleye anglers for an illegal activity and possibly lead to future illegal introductions into Noxon Reservoir.

c. Cumulative effects

An inadequate response to an illegal introduction may have effects beyond Noxon reservoir. Failure to respond to the illegal walleye introduction will imply acceptance of the population and illegal introductions in general by Montana Fish, Wildlife & Parks. This view may encourage others to make unauthorized introductions into other waters.

The presence of walleye in western Montana may also provide a readily available source of this species for other waters. Of particular concern is an introduction into Thompson Falls Reservoir where walleye could threaten fisheries throughout the Clark Fork River drainage.

Other disclosures

Numerous other nonnative species exist throughout Noxon Reservoir. These include desirable species that provide valuable sport fishing opportunity and other illegal introductions. Walleye are targeted in this effort because they have more habitat overlap than other nonnative fish with other species and control is likely feasible. There is no plan to suppress any other species within Noxon Reservoir.

Identification, Rationale, and Recommendation for Preferred Project Alternative

Preferred alternative:

The preferred alternative is walleye suppression in Noxon Reservoir.

Support rationale:

The proposed alternative is consistent with the established MFWP policies on Walleyes West of the Continental Divide and the Illegal and Unauthorized Introduction of Aquatic Wildlife Policy. Walleye suppression would also constitute an appropriate response to this illegal introduction and convey the message that MFWP is serious about deterring illegal introductions by would-be bucket biologists.

Implementation of walleye suppression will provide numerous benefits to the aquatic resources of Sanders County. Successful suppression will reduce or eliminate the current negative impacts and future threats posed by walleye to desirable sport and native fisheries. Addressing this problem immediately will also increase the likelihood of success and avoid the need to manage a large population of stunted walleye and inevitable need to restore severely impacted desirable species.

Project objectives rationale:

The proposed alternative will meet the objectives of this project.

Monitoring commitments:

MFWP will continue to monitor fisheries in the lower Clark Fork drainage.

Public Participation

The public will be notified in the following ways to comment on the draft EA for the Investigation of Suppression of Walleye in Noxon Rapids Reservoir:

- News releases will be given to the Sanders County Ledger, Clark Fork Valley Press, Kalispell Daily Inter Lake, Great Falls Tribune, Missoulian, and Helena Independent Record, and other media outlets. Legal notices will be published in the Sanders County Ledger.
- Legal notice and the draft EA will be posted on the MFWP web site: http://fwp.mt.gov/publications.
- Draft EAs will be available at the MFWP Field Office in Thompson Falls, MFWP Region 1 Headquarters in Kalispell, and the MFWP State Headquarters in Helena.

This level of public involvement is appropriate for a project of this scale.

The following is a list of agencies consulted in preparation of this EA:

- U.S. Fish and Wildlife Service, Montana Field Office, Creston
- Montana Fish, Wildlife & Parks, Wildlife Division, Thompson Falls
- Idaho Fish and Game Department

Literature Cited

- Baldwin, C.M., J.G. McLellan, M.C. Polacek and K. Underwood. 2003. Walleye Predation on Hatchery Releases of Kokanees and Rainbow Trout in Lake Roosevelt, Washington. North American Journal of Fisheries Management. 23: 660-676.
- BioAnalysts Inc. 2000. Fish community structure and the effects of resident predators on anadromous fish in Rocky Reach Project area. Rocky Reach Hydroelectric project, FERC Project No. 2145. Prepared by BioAnalysts Inc., Boise, Idaho, for Public Utility District No.1 of Chelan County, Wenatchee, WA. 28 p.
- Colby, P., and C. Hunter. 1989. Environmental assessment of the introduction of walleye beyond their current range in Montana. Montana Department of Fish, Wildlife, and Parks, Helena.
- Dickson, T. 2003. Great Expectations: Warm water anglers have high hopes for the state's walleye fishing. Too High? Montana Outdoors. March-April 2003.
- DeHaan, P. and S. Bernall. 2012. Estimation of spawning success for bull trout transported above mainstem Clark Fork River dams. Prepared for Avista Corporation, Noxon, Montana.

- Gauthier, K. G. 2001. Relations between angler harvest, effort, and abundance of fishes in Escanaba Lake, Wisconsin. Master's thesis, University of Wisconsin–Stevens Point, Stevens Point.
- Hartman, G.H. 2009. A biological synopsis of walleye (Sander vitreus). Canadian Manuscript Report of Fisheries and Aquatic Sciences: 2888. 48 pp.
- Horn, C., J. Hanson, T. Tholl, and K. Duffy. 2009. Noxon Reservoir Walleye Life History Study. Prepared for Avista Corp Natural Resources, Noxon, MT.
- Horn, C. and T. Tholl. 2011. Noxon and Cabinet Gorge Reservoir Fisheries Monitoring Progress Update 2010. Prepared for Avista Corp Natural Resources, Noxon, MT.
- Horn, C. and T. Tholl. 2010. Noxon and Cabinet Gorge Reservoirs Fisheries Monitoring: Comprehensive Report: 1997-2009. Prepared for Avista Corp Natural Resources, Noxon, MT.
- Hoxmeier, J.H., D.H. Wahl, M.L. Hooe and C. L. Pierce. 2004. Growth and Survival of larval Walleyes in Response to Prey Availability. Transactions of the American Fisheries Society, 133:1, 45-54
- Huston, J.E. 1994. Montana Fish, Wildlife and Parks Fisheries Division Job Progress Report, July 1, 1993 through June 30, 1994. Montana Fish, Wildlife and Parks, Kalispell.
- Johnson, B.M., R. Arlinghaus and P.J. Martinez. 2009. Are We Doing All We Can to Stem the Tide of Illegal Fish Stocking? Fisheries, 34:8, 389-394.
- Kalff, J. 2002. Reservoirs. Pages 523-536 *in* Jakob Kalff, author. Limnology: inland water ecosystems. Prentice-Hall, Inc. Upper Saddle River, NJ.
- Kempinger, J. J. and R. F. Carline. 1977. Dynamics of the walleye (Stizostedion vitreum) population in Escanaba Lake, Wisconsin, 1955-72. Journal of the Research Board of Canada 34: 1800-1811.
- Kreiner, R.J. 2013. A winter creel survey of Cabinet Gorge, Noxon Rapids, and Thompson Falls reservoirs. Report for Avista corporation, Noxon, Montana.
- Mc Mahon, T.E. and D.H. Bennett. 1996. Walleye and northern pike: boost or bane to northwest fisheries? Fisheries 21 (8): 6-13
- Montana Fish, Wildlife and Parks. 2012. Statewide Fisheries Management Plan. http://fwp.mt.gov/fishAndWildlife/management/fisheries/statewidePlan/managementPlan.html
- Montana Fish, Wildlife and Parks. 2009. Angler pressure surveys. www.fwp.mt.gov/anglerPressureSurveys/2009.html
- Montana Fish, Wildlife and Parks. 2007. Montana sport fishing consumption guidelines. www.fwp.mt.gov/fishing/

- Roberts. E., T. Humphrey, R. Spoon, K. Zackheim, A. Strainer, G. Liknes, B. Rich and D. Skarr. 2010. Upper Missouri River Reservoir Fisheries Management Plan 2010-2019. Montana Fish, Wildlife and Parks, Helena, Montana.
- Ryan, R. and Jakubowski, R. 2012. Pend Oreille Walleye Monitoring 2011. Avista Corporation. Spokane, Washington.
- Scarnecchia, D.L., L. Youngtaik, S. Moran, T. Tholl, J. DosSantos and K. Breidinger. In Prep. Novel fish communities: native and non-native species trends in two run-of-the-river reservoirs, Clark Fork River, Montana. DRAFT report for Avista corporation, Noxon, Montana.
- Scott, W.B., and Crossman, E.J. 1973. Freshwater Fishes of Canada. Fisheries Research Board Canada, Bulletin 184. 966 pp.
- Tholl, T. and R. Kreiner. 2012. Noxon and Cabinet Gorge Reservoir Fisheries Monitoring Progress Update 2011. Prepared for Avista Corp Natural Resources, Noxon, MT.
- Washington Water and Power (WWP). 1994. Cabinet Gorge and Noxon Rapids Hydroelectric Developments 1993 Aquatic Habitat and Fish Resources Assessment. Washington Water Power Company, Spokane, WA.
- Washington Water and Power (WWP). 1996. 1994-1995 Fish Community Assessment on Cabinet Gorge and Noxon Reservoirs: A Supplemental Report. Washington Water Power Company, Spokane, WA.